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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/567,135	02/06/2006	Masafumi Matsunaga	NOR-1267	8893
37172 7590 05/28/2009 WOOD, HERRON & EVANS, LLP (NORDSON) 2700 CAREW TOWER 441 VINE STREET CINCINNATI, OH 45202				
EXAMINER				
HAN, KWANG S				
ART UNIT		PAPER NUMBER		
1795				
NOTIFICATION DATE		DELIVERY MODE		
05/28/2009		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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# Office Action Summary

**Application No.**

10/567,135

**Applicant(s)**

MATSUNAGA, MASAFUMI

**Examiner**

Kwang Han

**Art Unit**

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 13-28, 31-36, 39 and 42-44 is/are pending in the application.
- 4a) Of the above claim(s) 24-28, 31-36, 39 and 42-44 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 13-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 11/17/06.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_.

**ELECTROLYTE MEMBRANE, ELECTROLYTE MEMBRANE COMPOSITE, METHOD OF MANUFACTURING ELECTROLYTE MEMBRANE COMPOSITE, ELECTROLYTE MEMBRANE-ELECTRODE ASSEMBLY FOR FUEL CELL, METHOD OF MANUFACTURING ELECTROLYTE MEMBRANE-ELECTRODE ASSEMBLY FOR FUEL CELL, AND FUEL CELL**

Examiner: K. Han    SN: 10/567,135    Art Unit: 1795    May 26, 2009

***Election/Restrictions***

1.     Restriction is required under 35 U.S.C. 121 and 372. This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claims 13-23, drawn to an electrolyte membrane composite.

Group II, claim 24, drawn to a method of making I.

Group III, claim 25, drawn to another method of making I.

Group IV, claims 26 & 42, drawn to a method of making a membrane electrode assembly.

Group V, claims 27 & 43, drawn to another method of making a membrane electrode assembly with a gas barrier.

Group VI, claims 28 & 44, drawn to another method of making a two-sided membrane electrode assembly.

Group VII, claims 31-36, drawn to another method of making a membrane electrode assembly with powder electrode material.

Group VIII, claim 39, drawn to another method of making a membrane electrode assembly with a transfer process.

2. The inventions listed as Groups I - VIII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: groups I - VIII lack unity of invention because even though the inventions of these groups require the technical features of electrolyte membranes with removable masks for applying electrode materials in discrete locations, this technical feature is not a special technical feature as it does not make a contribution over the prior art in view of *Banerjee et al.*, US 5,415,888 which discloses the same features (see *abstract*, *Col. 7*).

3. During a telephone conversation with William Allen on 05/06/09 a provisional election was made without traverse to prosecute the invention of I, claims 13-23. Affirmation of this election must be made by applicant in replying to this Office action. Claims 24-28, 31-36, 39, & 42-44 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

4. The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and the product claims are subsequently found allowable, withdrawn process claims that depend from or otherwise require all the limitations of the allowable product claim will be considered for rejoinder. All claims directed to a nonelected process invention must require all the limitations of an allowable product claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product are found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

#### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu et al. (US 6475249) in view of Banerjee et al. (US 5415888).

Regarding claims 13 and 15, Hsu discloses a membrane electrode assembly for a fuel cell [Abstract] comprised of an electrolyte membrane having a first and second side with a mask on each side having a window (5:39-51). Having a plurality of holes is not significant since the courts have held that mere duplication of parts has no patentable significance unless a new and unexpected result is produced. In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960) (MPEP 2144.04). Hsu is silent towards the mask being removably attached to the electrolyte membrane.

Banerjee teaches a screen mask which is temporarily used to form an electrode layer having a desired size and configuration on the surface of the ion exchange membrane (7:18-55). It would have been obvious to one of ordinary skill in the art at the time of the invention to have the mask of Hsu to be removably attached to the electrolyte membrane because Banerjee teaches a mask is temporarily used to form the electrode layer.

Regarding claim 14, Hsu discloses the window to be shaped to form the catalyst layer (5:39-51).

8. Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu et al. and Banerjee et al. as applied to claim 13 above, and further in view of Kosako et al. (US 2004/0209155) and Iriya et al. (WO 03/043818, using US 2005/0064162 for citation and translation).

Regarding claims 16 and 18, Hsu and Banerjee are silent towards a gas barrier sheet being removably attached to the first masking member.

Kosako teaches a method for forming a catalyst layer using a polypropylene film which is peeled from the catalyst layer to form the sides of the electrolyte membrane by a transfer method [0116]. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a polypropylene film with the mask of Hsu and Banerjee because Kosako teaches this film allows for the catalyst layer to be formed by a transfer method. Kosako is silent towards the polypropylene film having gas barrier properties.

Iriya teaches a polypropylene based film to have properties of excellent adhesion, flexibility, gas barrier properties, etc. [Abstract]. It would have been obvious to one of ordinary skill in the art at the time of the invention that the polypropylene film would be a gas barrier because Iriya teaches that polypropylene film material has this property.

Regarding claims 17 and 19, the teachings of Hsu, Banerjee, Kosako, and Iriya as discussed above are herein incorporated. Iriya teaches an adhering assistant applied to the surface of the polypropylene film to promote autohesion of the film [0028].

Regarding claim 22, the teachings of Hsu, Banerjee, Kosako, and Iriya as discussed above are herein incorporated. The masking layer of Hsu and the gas barrier sheet Kosako would form an electrolyte membrane composite comprising a plurality of sheets.

9. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu et al. and Banerjee et al. as applied to claim 13 above, and further in view of Shimoaka (US 2004/0191956) and Iriya et al. (WO 03/043818, using US 2005/0064162 for citation and translation).

The teachings of Hsu and Banerjee as discussed above are herein incorporated. Hsu is silent towards the material for the mask material. Banerjee teaches the mask material can be any material having satisfactory strength (7:38-42).

Shimoaka teaches a print mask used to form layers for an electronic device comprised of a resin material such as polypropylene [0041, 0042]. It would have been obvious to one of ordinary skill in the art at the time of the invention to use polypropylene as the material for the mask because Shimoaka teaches polypropylene is an appropriate material to form a mask for producing layers on an electronic device. Shimoaka is silent towards the polypropylene material to be an autohesion material.

Iriya teaches an adhering assistant applied to the surface of a polypropylene film to promote autohesion of the film [0028]. It would have been obvious to one of ordinary skill in the art at the time of the invention to have the polypropylene film of Hsu, Banerjee, and Shimoaka to have an adhering assistant applied to the surface of the polypropylene film because Iriya teaches this promotes for the autohesion of the film.

10. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu et al. and Banerjee et al. as applied to claim 13 above, and further in view of Banerjee et al. (US 6156451, herein after referred to as Banerjee '451).

The teachings of Hsu and Banerjee as discussed above are herein incorporated. Hsu and Banerjee are silent as to the electrolyte membrane being adapted to be wound into a roll stock.

Banerjee '451 teaches a process for making a composite ion exchange membrane which is performed in a continuous fashion using roll stock (8:38-57). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the process of making a membrane using a roll stock because Banerjee '451 teaches it allows for the process to occur in a continuous fashion.

11. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu et al. and Banerjee et al. as applied to claim 13 above, and further in view of Iriya et al. (WO 03/043818, using US 2005/0064162 for citation and translation).

The teachings of Hsu and Banerjee as discussed above are herein incorporated. Hsu and Banerjee are silent toward a gas barrier wrapping material disposed about the electrolyte membrane and the first masking member.

Iriya teaches a wrap film material which has excellent adhesion, transparency, heat resistance, flexibility, and gas barrier properties [Abstract] for the purpose of packaging. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a film wrap with gas barrier properties to wrap the electrolyte membrane of Hsu and Banerjee because Iriya teaches this material provides packaging which protects the membrane.

#### ***Contact/Correspondence Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kwang Han whose telephone number is (571) 270-5264. The examiner can normally be reached on Monday through Friday 8:00am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on (571) 272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. H./  
Examiner, Art Unit 1795

/Dah-Wei D. Yuan/  
Supervisory Patent Examiner, Art Unit 1795